How the heck did I miss that? The role of visual attention in medical image perception

Experts, for example, radiologists searching for signs of cancer in an image of the breast, perform remarkable feats of visual search. They perform these feats using the same human “search engine” that we use to find jam in the pantry or the cat in the garden. That search engine is subject to some very striking limitations. In this talk, I will discuss some of the basics of human visual search. Then I will illustrate how errors can arise from attentional limitations. I will show how “inattentional blindness” can occur even with expert radiologists looking at medical images. In a task like breast cancer screening, a second source of errors is a by-product of the otherwise fortunate fact that cancer is rare in a screening population. People are typically not good at finding things that are very rare. We have found that this holds true for experts as well. If we know about these and other constraints, we can develop interventions that might reduce error rates.